

Marvine Colliery, Boiler House No. 2
W side of Boulevard Ave.,
between E Parker St. and I Rt. 380
Scranton
Lackawanna County
Pennsylvania

HAER No. PA-183-A

HAER
PA
35-SCRAN,
6A-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
MID-ATLANTIC REGION, NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

HISTORIC AMERICAN ENGINEERING RECORD

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Marvine Colliery, Boiler House No. 2

HAER No. PA-183-A

Location: Centrally located on the Marvine Colliery East Site, between the west side of Boulevard Avenue and the east bank of the Lackawanna River, between East Parker Street at the south and Interstate Route 380 at the north
Scranton, Lackawanna County, Pennsylvania

UTM: Z18 E446118 N4588017
Quad: Scranton

Dates of Construction: Circa 1898

Present Owner: Louis and Dominick DeNaples
F & L Realty

Present Occupant: Vacant

Present Use: None

Significance: Marvine Colliery is important to local history for its relationship to the development of the Anthracite Mining Industry in northeast Pennsylvania, "The Anthracite Capital of the World" 1890-1930. Boiler House No. 2 was the first structure built by the Marvine Colliery to the east of the Lackawanna River. The construction of Boiler House No. 2 was important to the development of the Marvine Colliery's east site, for this structure housed the boilers which provided steam power used to operate the apparatus in all mining structures built by this colliery in the early decades of the twentieth century.

Project Information: This documentation was undertaken in April 1990, in accordance with a resolution by the board of commissioners of Lackawanna County, Pennsylvania, as a mitigative measure prior to partial demolition of the Marvine Colliery to make way for construction of the Lackawanna County Recycling Center on the site.

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1288 Layton Road
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LOCATION

The Marvine Colliery, located in Scranton, Pennsylvania, at the borders between the city of Scranton and the boroughs of Dunmore and Throop, consists of two sites located adjacent to one another. They were divided by the Lackawanna River and operated by one company, the Delaware and Hudson Coal Company (later called the Hudson Coal Company) which was a subsidiary of the Delaware and Hudson Canal Company (later called the Delaware and Hudson Railroad Company).

This study is concerned primarily with Marvine Colliery No. 2, located to the east of the Lackawanna River, bounded by the Lackawanna River at the west, Boulevard Avenue at the east, East Parker Street at the south, and Interstate 380 at the north. Boiler House No. 2 occupies a central location at this site.

HISTORY OF EQUIPMENT AND OPERATIONS

Insurance maps of the city of Scranton indicate that the site west of the Lackawanna River was developed first (1872) and the site to the east of the river was developed circa 1898-1920.

The Reports of the Inspectors of Mines of the Anthracite Coal Regions of Pennsylvania for the Year 1872 state that construction of brick structures for use as an engine house and other facilities at the D & H Marvine Colliery was underway in that year; however, these structures, including a boiler house, were located on the site too the west of the Lackawanna River and, thus, the 1873 boiler house on the west site is designated as Boiler House No. 1.

The Reports of the Inspectors of Mines for 1874 identified boiler equipment at the Marvine Colliery as consisting of nine cylindrical boilers, each measuring 36 feet long with a diameter of 34 inches, delivering 60 pounds of pressure each. These boilers were powered by burning 4,032 tons of anthracite coal in 1875 to produce steam, and each was equipped with both safety valves and Belfield steam gauges. The boilers were arranged in groups of three.

The nine boilers delivered steam power to drive three 60-horsepower stationary steam hoisting engines which were used to provide lifting power to raise loaded coal cars along the slopes from the underground mining tunnels to the surface by means of 2,400 feet of 1-1.4-inch "wire rope" and winding winches. Steam produced in Boiler House No. 1 also provided power to drive one 75-horsepower fan engine used to provide air circulation to the underground mine tunnels. With the completion of a coal breaker on the west site in 1875, the nine steam boilers provided sufficient pressure to also drive one 80-horsepower breaker engine.

By increasing the steam pressure produced by the nine boilers from 60 to 80 pounds each, enough power was generated to also drive two 120-horsepower pumping engines which were added in 1876 to pump water which had accumulated in the underground mine tunnels to the surface.

The increased demand for steam power prompted the D & H to install an additional six cylindrical steam boilers in Boiler House No. 1, circa 1886. This allowed each of the fifteen boilers to operate at a lower pressure of 48 pounds. In circa 1897, another six cylindrical steam boilers were added. In that year, 20,448 tons of coal were required to fire the total 21 boilers.

The following year, 1898, ten additional cylindrical boilers were installed, and more in 1899, for a total of 32 boilers with a combined 640 horsepower. The increase in the number of boilers may have been made necessary by the installation of six additional pumps, also in 1898, used to pump water at 6,089 gallons per minute from the nearby Lackawanna River for use in the "wet" jig method of processing coal within Breaker No. 1. In 1899, to provide steam power within the 31 boilers, to run a total of 22 steam engines of all types, with a combined 1,641 horsepower, it was necessary to burn 22,398 tons of coal.

Photographs of the Marvine Colliery dated 1904 indicate that by this date Boiler House No. 2 had been constructed on the east site, but the 1898 insurance map of the city of Scranton does not yet indicate a structure in the location of Boiler House No. 2. It may be assumed that the structure's earliest construction date can be set at 1898, since records from the 1898 Report of the Inspectors of Mines indicate that ten additional boilers were added at the Marvine in 1898. This would allocate 21 boilers to Boiler House No. 1 and ten to Boiler House No. 2.

In 1903, five more cylindrical steam boilers were added in Boiler House No. 2, for a total of 37 boilers with a combined 740 horsepower, running a total of 28 steam engines of all types. The additional steam engines included engines to run three additional pumps which were installed to pump accumulated water from the underground tunnels.

The continual demand for power and the increased number of cylindrical steam boilers appeared to be sufficient until circa 1918 when the D & H undertook a modernization of its operations. To meet the increased demand for power at the Marvine Colliery, the D & H, in circa 1918, converted its boiler house equipment.

The 37 cylindrical steam boilers were removed, and thirteen tubular-type boilers were installed in Boiler House No. 2 (Boiler House No. 1 was demolished at the time of the construction of the new Breaker No. 2 in 1920). By burning 57,391 tons of coal per year, the tubular-type boilers could deliver a combined 3,450 horsepower to run a total of 49 steam engines, including an additional steam-powered ventilation fan, and 63 pumps which pumped a total of 36,635 gallons of water per minute.

Eight of the pumps were located underground and pumped accumulated water from the tunnels to the surface, and the other 55 pumped water from the Lackawanna River to the breakers for use in the coal washery "wet" preparation of coal and to three "silos" located at the southeast end of the colliery, for use in the preparation of "Anthrafine" in Dorr Thickeners which had been installed circa 1918.

The newly-installed equipment was used to its full potential for only about ten years. By 1936, (for exact reasons which remain unclear but were probably economic in nature due to the economic difficulties caused by the Great Depression as well as the decreasing market for coal), the D & H decided to purchase electricity from the local utility company to power equipment at the Marvine Colliery, presumably because it cost the company less to do so than to generate its own power. In 1937, some equipment in use was still powered by steam, with several of the boilers fired up. In that year, only 20,303 tons of coal were burned at the Marvine Colliery to provide operative power and, two years later, only 11,412 tons were burned for power. Some time after converting to purchased electrical power circa 1936, Boiler House No. 2 was converted into a structure with mixed use.

A field examination of the building and the grounds immediately to the west of the structure indicate ruins of coal chutes leading to a loading platform and scale within 20 feet of the building's west facade. A large opening at the upper story of the building's north facade, directly across from Breaker No. 2, contains ruins of a large coal chute.

Apparently, processed coal was conveyed from the breaker, through the former boiler house, out of chutes located in openings in the building's west facade, and loaded into railroad freight cars which were pushed to loading platform/scale. An examination of the 1956 Sanborn Insurance Map of Scranton seems to bear this out, as small square additions at the north and west facades, as well as dotted lines indicating a conveyor line extending south from the direction of the breaker to the boiler house appear; whereas, no such additions appear on the structure on the 1918 site map.

The 1956 Sanborn Insurance Map of Scranton also indicates only two boilers remaining in Boiler House No. 2, located in the northeast corner of the building.

Conversations with local residents also indicate that the former 1918 Boiler House No. 2 was converted to a coal packaging facility in the later years of operations at the Marvine Colliery. In 1973, records indicate that this structure was used only for preparing "bag" coal, which was transported to the site from the Hudson Coal Company's Huber Colliery in Luzerne County.

DESCRIPTION OF ARCHITECTURE AND STRUCTURAL SYSTEMS

The Marvine Colliery Boiler House No. 2, constructed in circa 1898-1904, is a brick eight-inch-solid wall structure (50 feet wide, east-west, and 80 feet long, north-south), located in a central position on the site. The foundation is of concrete, with a concrete wall basement story, measuring 4 feet from ground level to the beginning of the first story brickwork.

Field examination of the basement indicates thick steel "V" shaped struts imbedded at regular intervals through the one-foot-thick concrete first-story floor, to provide support for the heavy boiler equipment. Remnants of a rail conveyor system extend from the north end of the basement story out of an opening in the south end basement wall. Presence of ash on the basement floor indicates that this conveyor may have originally been used to carry coal ash from the boilers to an ash pit.

The brickwork of the boiler house structure is laid in English bond, with five stretcher rows per header course. The cornice and raking cornice consist of a four step brick decorative step-work detail.

Window and door surrounds consist of two course relieving arches at the top, with Queens closers and Kings closers along the sides. The walls are mostly intact, but the brickwork appears to be in poor condition. Windows in the east facade have been closed in with cinder block.

The roof of this structure has been removed, with one trussed steel roof support system remaining attached to the brick walls at the north end. Three additional roof trusses, in various stages of ruin, remain where they had fallen on the floor in the interior of the building. The roofing support system consists of steel 4" x 4" paired L beams as rafters and base; 3" x 3" paired L beams as a vertical king post; and twelve diagonal 2" x 2" pair L beam trusses. The various components are bolted together on steel plates (see page 7 of this report for sketch of roof truss).

Two three-sided partitions within the structure are of a very recent vintage and may date from the time of the colliery's operations when the structure was used to package coal that was sold by the "bag." A small partition at the north end of the east wall was constructed of unsupported cinder block.

A second partition at the north end of the west wall, measuring 15 feet wide (east-west) and 38 feet long (north-south), was constructed of cinder block supported on the exterior by vertical 2" x 6" single "I" beams at each of the west corners and seven evenly-spaced "I" beams along the east wall. The interior of the partition is divided into three separate compartments, with square 3x3-foot openings centered at the base of the east facade of each end compartment. The end compartments have interior dimensions of 15 feet (north-south) by 14 feet, 9 inches (east-west), and may have been used to store sized coal. The middle compartment is 4 feet wide (north-south), has no exterior opening, and contains "I" beams running diagonally upper north to lower south, supporting the walls of each end compartment.

A porch (in extremely deteriorated condition), constructed of rough wood plank flooring and roof, extends across the south facade of this structure at the first floor level.

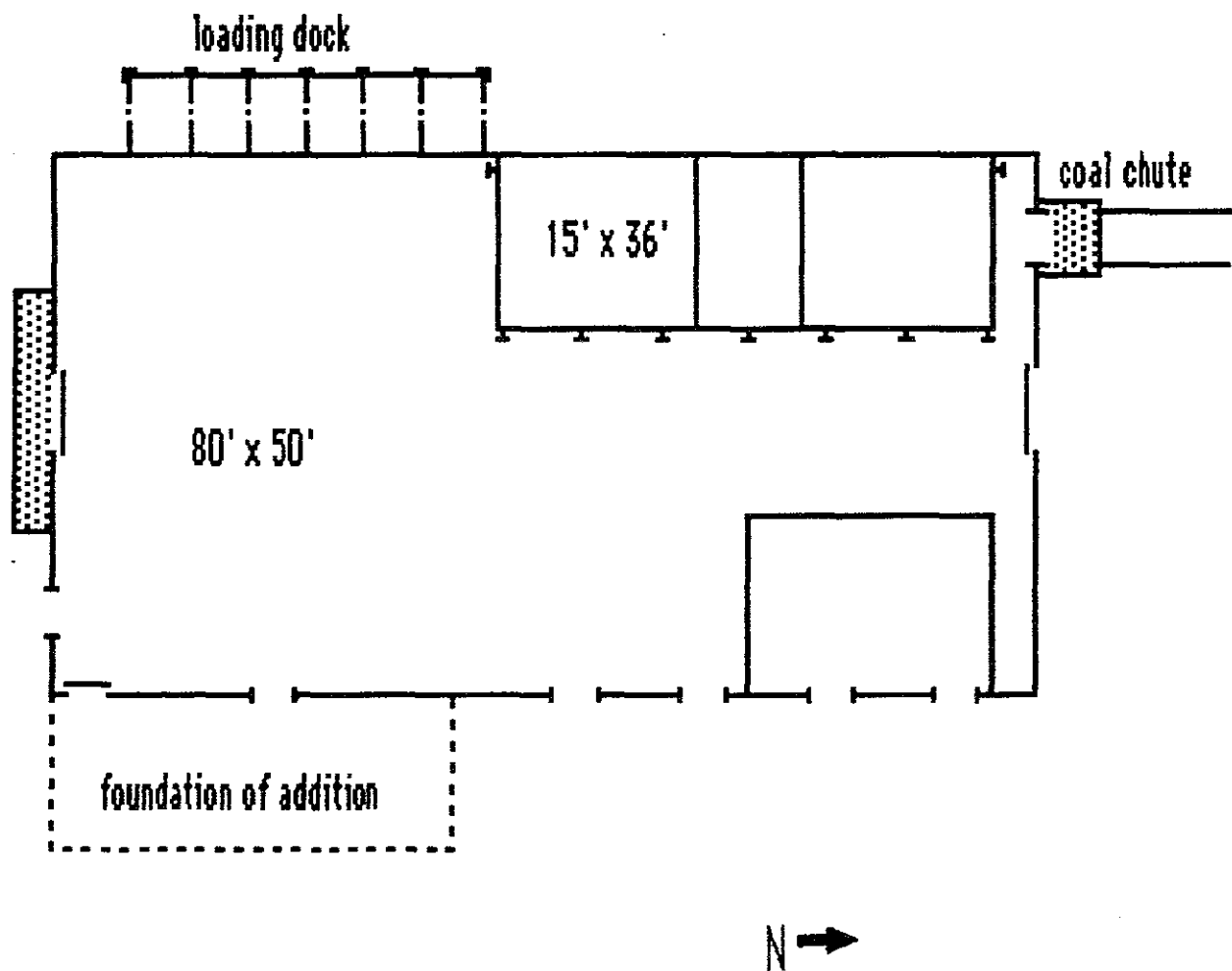
The remains of a coal chuting system lie on the ground at the exterior north facade. Also directly to the north of the building, portions of the overhead piping remain, supported by a trussed steel system.

The west facade of Boiler House No. 2 faces a railroad coal car-loading platform and weigh scale (with standard gauge tracks) located approximately 20 feet from the building at that side. Openings for coal chutes are located at this end of the building, and ruins of several iron chutes remain near the concrete and steel loading platform.

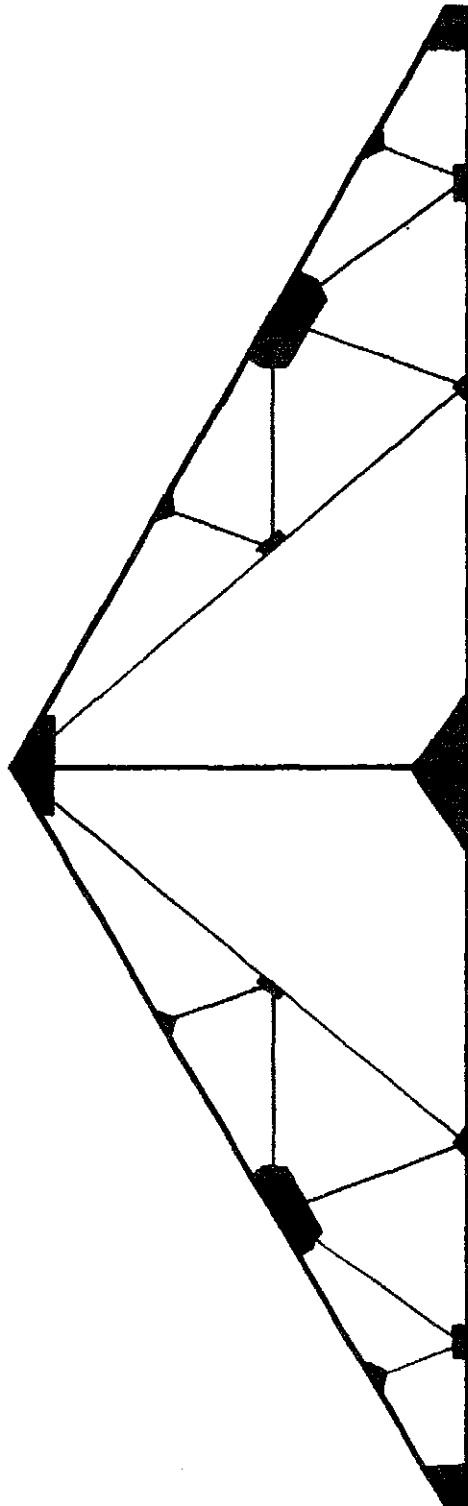
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PLAN OF BOILER HOUSE NO. 2



SKETCH OF ROOF TRUSS